

AMENDED CLAIM SET

The claims have been amended as follows:

1. (currently amended) A liquid fuel quantity measurement ~~system~~ system,
comprising:
 - a first container (3) for ~~interiorly~~ storing liquid fuel therein;
 - pressure application means (6) for raising air pressure within said first container (3) by
supplying air into said first container (3);
 - air-pressure measurement means (5) for measuring the air pressure within said first
container (3);
 - a first pipeline (13) through which said first container (3) and said pressure application
means (6) communicate with each other;
 - a second container (4) connected with said first container (3);
 - a second pipeline (12) through which said first container (3) and said second container (4)
communicate with each other;
 - feed means (14, 8) for feeding the liquid fuel within said first container (3) into said
second container (4) through said second pipeline (12);
 - detection means (9) for detecting a reduction in the liquid fuel within said second
container (4);

control means ~~(11)~~ for controlling said feed means ~~(14, 8)~~ and said pressure application means ~~(6)~~ by selecting either a pressure mode or a supply mode, based on information from both said air-pressure measurement means ~~(5)~~ and said detection means ~~(9)~~;

air-volume measurement means for measuring the volume of air supplied into said first container ~~(3)~~ through said first pipeline ~~(13)~~ by said pressure application means ~~(6)~~; and

arithmetic means ~~(7)~~ for calculating, during said pressure mode, the volume of the liquid fuel within said first container ~~(3)~~ from both the volume of air measured by said air-volume measurement means and a quantity of change in air pressure calculated from the air pressure within said first container ~~(3)~~ measured by said air-pressure measurement means ~~(5)~~, and for calculating, during said supply mode, the volume of the liquid fuel within said first container ~~(3)~~ from the number of times that the liquid fuel was fed from said first container ~~(3)~~ into said second container ~~(4)~~.

2. (currently amended) A liquid fuel quantity measurement ~~system—system,~~
comprising:

a first container defining only a single space therein for directly ~~(3)~~ for interiorly storing
liquid fuel;

pressure application means ~~(6)~~ for raising air pressure within said first container ~~(3)~~ by
supplying air into said first container ~~(3)~~;

air-pressure measurement means ~~(5)~~—for measuring the air pressure within said first container~~(3)~~;

a first pipeline ~~(13)~~—through which said first container ~~(3)~~—and said pressure application means ~~(6)~~—communicate with each other;

air-volume measurement means for measuring the volume of air supplied into said first container ~~(3)~~—through said first pipeline ~~(13)~~—by said pressure application means~~(6)~~; and

arithmetic means ~~(7)~~—for calculating the volume of the liquid fuel within said first container ~~(3)~~—from both the volume of air measured by said air-volume measurement means and a quantity of change in air pressure calculated from the air pressure within said first container ~~(3)~~ measured by said air-pressure measurement means~~(5)~~.

3. (currently amended) A liquid fuel quantity measurement ~~system—system,~~
comprising:

a first container ~~(3)~~—for ~~interiorly~~ storing liquid fuel therein;

a second container ~~(4)~~—connected with said first container~~(3)~~, a pressure inside the first container being maintained higher than a pressure inside the second container;

a second pipeline ~~(12)~~—through which said first container~~(3)~~ and said second container ~~(4)~~ communicate with each other;

feed means ~~(14, 8)~~—for selectively allowing and prohibiting feeding the liquid fuel within said first container ~~(3)~~—to be fed into said second container ~~(4)~~—through said second pipeline~~(12)~~;

detection means ~~(9)~~ for detecting the remaining quantity of the liquid fuel within said second container ~~(4)~~;

control means ~~(11)~~ for controlling said feed means ~~(14, 8)~~, based on information from said detection means ~~(9)~~; and

arithmetic means ~~(7)~~ for calculating the volume of the liquid fuel within said first container ~~(3)~~ from the number of times that the liquid fuel was allowed to be fed by said feed means from said first container ~~(3)~~ into said second container ~~(4)~~.

4. (currently amended) The liquid fuel quantity measurement system as set forth in claim 1 or 2, wherein said air-volume measurement means comprises raised-pressure measurement means ~~(5)~~ for measuring the raised pressure, and storage means for storing a corresponding relationship between the raised air pressure and the volume of air supplied into said first container ~~(3)~~.

5. (currently amended) The liquid fuel quantity measurement system as set forth in claim 4, wherein said air-volume measuring means ~~(5)~~ is also used as said raised-pressure measurement means ~~(5)~~.

6. (currently amended) The liquid fuel quantity measurement system as set forth in claim 1, further comprising:

a first pipeline valve ~~(15)~~ for regulating flow within said first pipeline ~~(13)~~; and

a second pipeline valve ~~(14)~~ for regulating flow within said second pipeline ~~(12)~~;

wherein a portion of said first pipeline ~~(13)~~ extending from said first pipeline valve ~~(15)~~ toward said first container ~~(3)~~ and a portion of said second pipeline ~~(12)~~ extending from said second pipeline valve ~~(14)~~ toward said first container ~~(3)~~ are merged into one.

7. (currently amended) The liquid fuel quantity measurement system as set forth in claim 6, provided in a construction machine ~~(1)~~ equipped with a traveling substructure ~~(30)~~ and a revolving superstructure ~~(20)~~ revolvably mounted on said traveling substructure ~~(30)~~ through a swivel joint ~~(10)~~,

wherein said first container ~~(3)~~ is provided as a main fuel tank in said traveling substructure ~~(30)~~, and said second container ~~(4)~~ is provided as an auxiliary fuel tank in said revolving superstructure ~~(20)~~.

8. (currently amended) A liquid fuel quantity measurement ~~method~~method, comprising:

providing a first container (3) for ~~interiorly~~ storing liquid fuel therein;

providing pressure application means (6) for raising air pressure within said first container (3) by supplying air into said first container (3);

providing a first pipeline (13) through which said first container (3) and said pressure application means (6) communicate with each other;

providing a second container (4) connected with said first container (3);

providing a second pipeline (12) through which said first container (3) and said second container (4) communicate with each other; and

providing feed means (14, 8) for feeding the liquid fuel within said first container (3) into said second container (4) through said second pipeline (12);

supplying air into said first container through said first pipeline by said pressure application means wherein, when the air pressure within said first container (3) is less than a predetermined pressure, ~~air is supplied into said first container (3) through said first pipeline (13) by said pressure application means (6),~~

detecting or calculating both the volume of the supplied air and a quantity of change in the air pressure within said first container (3) due to the air supply ~~are detected or calculated~~,
and

~~_____ calculating the volume of the liquid fuel within said first container (3) is calculated from~~
both the volume of the supplied air and the quantity of change in the air pressure;

~~and wherein, feeding a predetermined quantity of liquid fuel from said first container into~~
~~said second container through said second pipeline by said feed means~~ when the liquid fuel
within said second container (4) is less than a predetermined quantity; ~~and, a predetermined~~
~~quantity of liquid fuel is fed from said first container (3) into said second container (4) through~~
~~said second pipeline (12) by said feed means (14, 8), and~~

~~_____ calculating the volume of the liquid fuel within said first container (3) is calculated based~~
on the number of times that the liquid fuel was fed.

9. (currently amended) A liquid fuel quantity measurement ~~method~~ method,
comprising:

providing a first container defining only a single space therein for directly (3) for
~~interiorly~~ storing liquid fuel;

providing pressure application means (6) ~~for~~ raising air pressure within said first
container (3) ~~by supplying air into said first container (3); and~~

providing a first pipeline (13) through which said first container (3) and said pressure
application means (6) communicate with each other,;

~~wherein supplying air is supplied into said first container (3) through said first pipeline~~
~~(13) by said pressure application means (6); means;~~

detecting or calculating both the volume of the supplied air and a quantity of change in the air pressure within said first container (3) ~~due to the air supply are detected or calculated, supply;~~ and

calculating the volume of the liquid fuel within said first container (3) ~~is calculated from~~ both the volume of the supplied air and the quantity of change in the air pressure.

10. (currently amended) A liquid fuel quantity measurement ~~method~~ method, comprising:

providing a first container (3) ~~for interiorly storing liquid fuel therein;~~

providing a second container (4) ~~connected with said first container (3);~~

providing a second pipeline (12) ~~through which said first container (3) and said second container (4) communicate with each other; and~~

maintaining a pressure inside the first container higher than a pressure inside the second container;

providing feed means (14, 8) ~~for selectively allowing and prohibiting feeding the liquid fuel within said first container (3) to be fed into said second container (4) through said second pipeline (12);~~

feeding ~~wherein~~ a predetermined quantity of liquid fuel ~~is fed from said first container (3) into said second container (4) through said second pipeline (12) by said feed means (14, 8); and~~

Application No.: 10/517,836
Reply dated January 18, 2006
to Office Action of October 18, 2005
Page 25 of 30

Docket No.: 1602-0191PUS1

calculating the volume of the liquid fuel within said first container ~~(3) is calculated~~ based
on the number of times that the liquid fuel was fed.